Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:	)	
	)	
Administration of the North	)	CC Docket No. 92-237
American Numbering Plan	)	Phase I

REPLY COMMENTS
OF THE
UNITED STATES TELEPHONE ASSOCIATION

The United States Telephone Association (USTA) respectfully submits its reply to comments filed December 26, 1992 on Phase I of the above-referenced proceeding.

I. ADMINISTRATION OF THE NANP.

In its comments on Phase I issues, USTA provided the Commission with the following mission statement to govern the administration of the North American Numbering Plan (NANP): to ensure the continued availability of numbering resources and the logical evolution of numbering capabilities to support the telecommunications industry. USTA also identified five attributes essential for successful administration of the NANP and discussed several alternatives for NANP administration. USTA urged the Commission to ensure that NANP administration focuses on the continued viability of the NANP and its capability to accommodate the needs of carriers and users.

Several parties addressed changes to the NANP as well as to its administration in their comments. However, it appears that few commenting parties discussed the impact that changing the NANP and its administration will have on customers. Such changes could affect millions of customers since changes in the NANP or how it is administered could have a direct impact on the public switched telephone network. Consequently, exchange carriers and their customers have a significant stake in the outcome of this proceeding. Any changes instituted by the Commission must not impose hardships on customers, must not force customers to incur additional costs and must not endanger the availability of numbering resources. Exchange carriers remain ready to work with other service providers to make sure that the appropriate numbering resources are made available for new services and remain committed to the efficient use of NANP resources to meet the long term needs of the telecommunications industry and its customers.

Many numbering issues are currently under consideration in established industry groups. While such groups may be the appropriate arbiters of these issues, the Commission should be aware that these groups, as well as the current NANP administrator, are making decisions which are altering traditional applications of the public numbering resource.[1]

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[1]Within the context of international inbound traffic an interchangeable numbering plan area (INPA) code has been assigned to identify carriers handling inbound international traffic. Such allocations will accelerate the exhaust of INPA codes.

Further, consideration of possible changes to the NANP or its administration should also take into account their impact on the other countries in World Zone 1. As noted in its comments, USTA strongly supports the continuation of the current internationally integrated numbering plan and the integrated, centralized administration of that plan. Any change in the integrated plan could force carriers to make costly changes to every switch in World Zone 1, as it would require the establishment of international dialing between the countries within the integrated plan. Changes which hasten the exhaust of numbering resources will have a direct impact, not only on the public switched telephone network as noted above, but also on all customers in World Zone 1.

In any event, USTA recommended that no change in administration of the NANP should occur until after 1995 in order to avoid interfering with the implementation of carrier identification code expansion and interchangeable NPA codes.

II. OTHER ISSUES.

A number of the other issues raised by the Commission were included in the comments. USTA will address two of these issues, personal communications services (PCS) numbering and local number portability, in these reply comments.

A. PCS Numbering.

USTA stated in its comments that the numbering plan for new technologies and services should be part of the NANP. USTA also stated that the objective of non-geographic numbering resources dedicated to PCS should be to support service provider portability. As with 800 database service, PCS number portability will enhance the value of PCS to customers by providing a more efficient allocation of numbering resources, by permitting customers to change service providers without changing numbers and by allowing a greater number of service providers to offer PCS.

In order to facilitate implementation of PCS to best serve the public interest, USTA recommends that the Commission require service provider portability. This will certainly ease the transition to PCS by making it easier for customers to utilize new personal services and will encourage new providers to enter the PCS market.

The Commission must carefully consider the impact of any PCS numbering plan which would result in major switch modifications or a change in the dialing pattern. USTA recommends that the implementation of the home-based and country-based PCS numbering schemes utilize the NANP.[2] For example, USTA has opposed efforts to either mandate or encourage use of the prefix plan, e.g., an extended NANP, for

[2]See, Attachment 1.

universal personal telecommunications numbering.[3] USTA believes that such a plan would cause unnecessary customer confusion. It would also force exchange carriers to make costly hardware and software changes to their networks to accommodate the additional digits. While the costs of these changes ultimately may be borne by customers, it has not been clearly demonstrated that customers ultimately will receive any benefit from such a plan.

B. Local Number Portability.

In its comments, USTA described the extent of the modifications which would be required to implement its interpretation of local number portability.[4] The comments include a variety of interpretations regarding local number portability. Given the possibility that local number portability will require extensive system and operational changes, the concept of local number portability and the geographic area to be covered must be more clearly and uniformly defined before any action is taken to further this concept.

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[3]See, Attachment 2.

[4]See, also comments of U S WEST and SNET.

III. CONCLUSION.

USTA urges the Commission to carefully consider the impact of any changes in either the NANP, the administration of the NANP or any other numbering issue on customers before any such changes are enacted.

Respectfully submitted,

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Committee T1
Contribution

T1P1.3/93-003

Standards Project: T1P1.3 UPT/PCS
Subworking Group: Numbering, Addressing, Routing

Title: Draft Technical Report for UPT Numbering, Addressing and Routing

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Abstract: This contribution represents a draft Technical Report (TR) to provide the North American industry with technical guidance on the numbering, addressing, and routing aspects of implementing UPT/PCS in North America (CCITT-World Zone 1).

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DRAFT TECHNICAL REPORT

UPT/PCS NUMBERING, ADDRESSING AND ROUTING

VERSION #2
FEBRUARY 1993
USTA NUMBERING PLANNING SUBCOMMITTEE

DRAFT TECHNICAL REPORT
FOR
UPT/PCS NUMBERING, ADDRESSING AND ROUTING

1.0 SCOPE AND PURPOSE

Universal Personal Telecommunications/Personal Communication Service (UPT/PCS) architecture and services are currently being implemented both internationally and in North America. The CCITT is in the process of developing international standards covering all aspects of UPT (see reference listing below).

The purpose of this Technical Report (TR) is to provide the North American industry with technical guidance on the numbering, addressing and routing aspects of implementing PCS in North America (CCITT - World Zone 1).

CCITT Rec. E.168 "Application of Rec. E.164 Numbering Plan for UPT" defines the Rec. E.164 "Numbering Plan for the ISDN Era" numbering to be applied according to three different applications of UPT, Home-based, Country-based and Global serving areas. Each application is based on an assumption regarding the UPT/PCS geographic serving area, i.e. Home-based is limited (e.g. to a city) where as Global provides full coverage anywhere in the world. The scope of this T.R. is restricted to the Home-based and Country-based applications of PCS within World Zone 1. Further, the scope is limited to Incoming calls to the UPT/PCS user from terminals on the PSTN (Public Switched Telephone Network).

2.0 REFERENCES

2.1 CCITT Source Documents

Draft	Rec. F.850	Principles of UPT
Draft	Rec. F.851	Service Description for UPT
Draft	Rec. E.164	Numbering Plan for the ISDN Era
Draft	Rec. E.168	Application of E.164 Numbering Plan for UPT
Draft	Rec. E.174	UPT Routing Plan

2.2 T1P1 Source Documents

T1P1.3/92-002	T1P1 System Engineering Working Document for PCS
T1P1.3/92-101	Personal Communication Terminology
T1P1.3/92-104	UPT Service Set One-General Description

2.3 Other Source Documents

To follow

Note 1 - The initial SAC(s) assigned to UPT/PCS may perhaps be in the N00 format. In the post INPA era - UPT/PCS SAC's will not conform to the N00 format but may be allocated from the general pool of new NPA codes.

Note 2 - With advent of UPT/PCS Number Portability, full 10 digit NANP numbers will be assigned to UPT/PCS users and Service Provider specific NXX assignment will disappear. This will allow UPT/PCS users to move freely between Service Providers without number changes.

7.3 Country-based Addressing

The following table provides examples of addressing details for all Country-based call types.

Type of call	Prefix	CC	NPA	NXX	LN#	UPT	SP	Total
						ID	ID	Digits
								Dialed
Local & Toll								
Direct Dialed								
SAC	1		500	456	7890	500	NXX-	11
							LN#	
International								
Direct Dialed								
Australia, Melbourn	011		61	15	670	2562	NXX-	13+
							LN#	
Operator Assisted								
National								
SAC	0		500	456	7890	500	NXX-	11
							LN#	
Operator Assisted								
International								
Australia, Melbourn	01	61	15	670	2562	15	NXX-	15
							LN#	

Table B - Country-based Numbering and Addressing

7.4 Country-based Routing

Incoming call routing in the Country-based scheme follows the basic two-stage routing technique required for any UPT/PCS call (ref. Section 4). That is: an initial connection to the UPT/PCS user's service profile to obtain the current Destination Terminal Number (DTN), and, completion of the call to that DTN.

In this scheme the UPT/PCS number input into the originating exchange (i.e. SAC NXX XXXX) by the caller contains two fundamental pieces of routing information. The SAC identifies the call as UPT/PCS. The NXX code identifies the UPT/PCS Service Provider. In order to advance the call, the Destination Terminal Number (DTN) which resides in that particular Service Provider's service profile data base must be determined.

At this point the call must be taken to a UPT/PCS "serving exchange". That is an exchange which is equipped with the intelligence (to recognize and route) and connectivity (trunk group and/or signalling link) to either pass the call to the UPT/PCS Service Provider, or retrieve the DTN from the Service Provider's database.

In the first case the Service Provider assumes control of the call and completes it according to the UPT/PCS user's current instructions.

In the second case, the DTN is returned to the originating network and the call is routed based on the DTN which must always be a geographic NANP (routing) number.

Some UPT/PCS Service Providers (PSP) will be carriers and will wish to handle the call to completion, while other PSP's will not have carrier status or capability and therefore will turn the call back to the originating "UPT/PCS Serving Exchange" for completion. In the second scenario the DTN may be preceded by the Carrier Access Code (CAC) chosen by either the PSP or the UPT/PCS user.

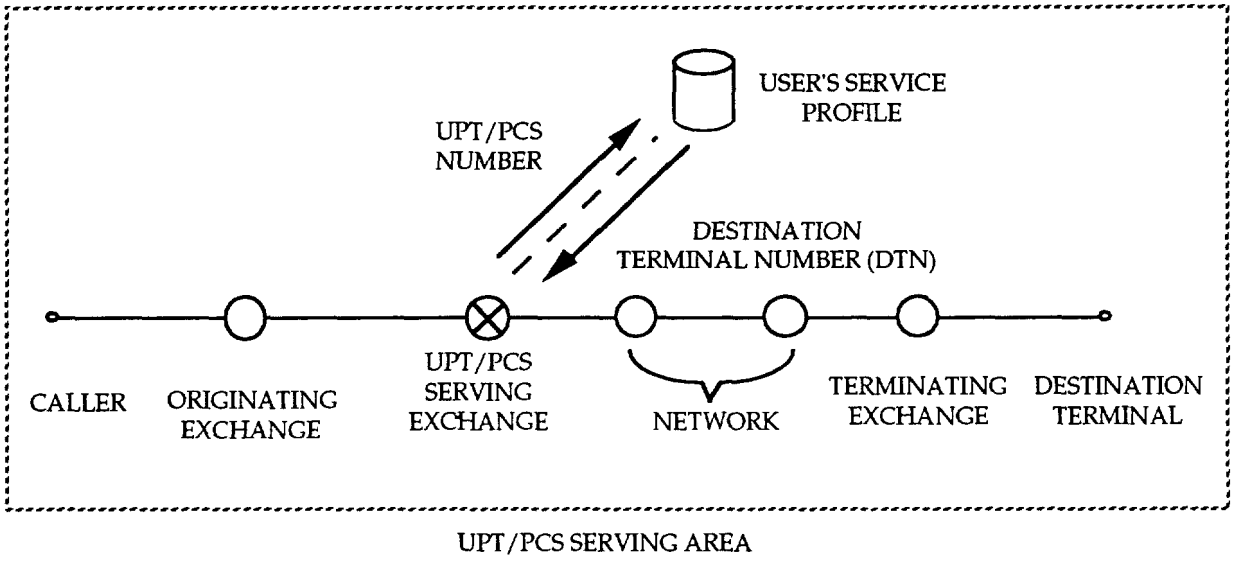

Figure 2 Country-Based Routing - Incoming Call

- Calls Originating in the Home NPA

  Calls originating from the PSTN in the Home NPA where the NXX code is identified as a PCS Central Office (NXX) code would be routed to the PSP assigned the NXX code. Specifically, the number is dialed according to the local dialing plan (7 or 10 digits) and the network routes the call to the destination PSP associated with the dialed NXX code. The call is routed to the associated PSP's switching entity and a query is launched to the PSP's database to interrogate the subscriber's service profile to obtain the current destination terminal number specified by the PCS subscriber in their service profile.

- Call Delivery

  The call is delivered to the destination terminal number using standard network routing and translation techniques.

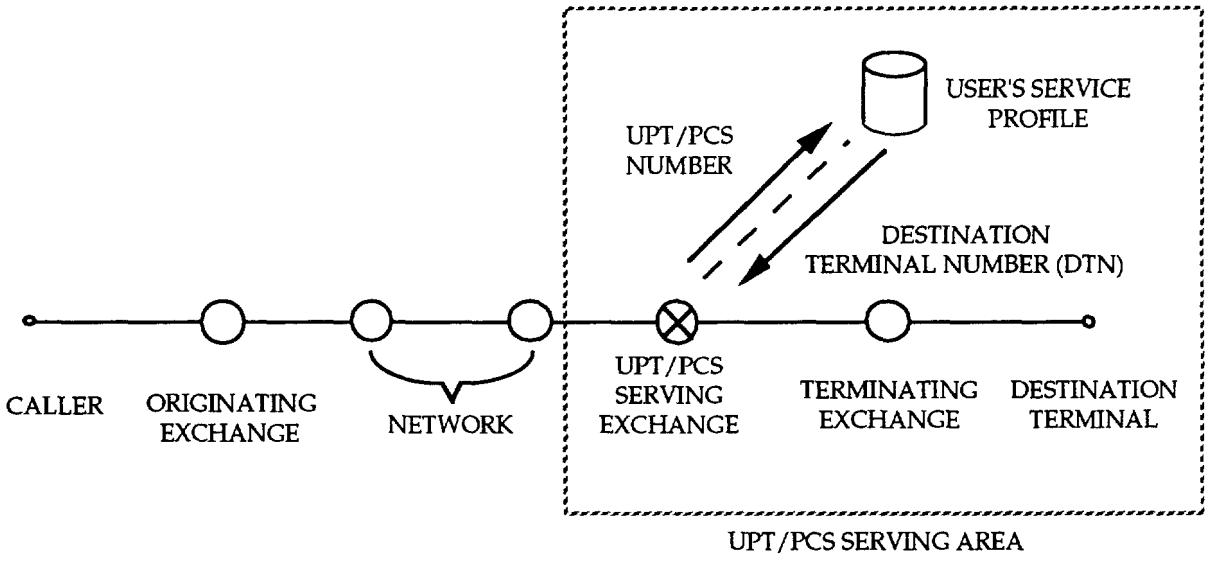

Figure 1 Home-Based Routing - Incoming Call

7.0 COUNTRY-BASED NUMBERING SCHEME

7.1 Description

For the purpose of this Technical Report, the following describes the Country-based Numbering Scheme. In the Country-based Numbering Scheme UPT/PCS service capability is provided throughout a broad geographic coverage area (i.e., USA, Canada, or North America). This implies that full UPT/PCS functionality for all calls to and from the UPT/PCS user would be supported within the defined serving area. Calls to the user from non-UPT/PCS user located both inside and outside (e.g. Japan) the defined serving area would be completed according to the UPT/PCS user's instructions.

7.2 Country-based Numbering Structure

In this scheme the UPT/PCS number is a non-geographic NANP number. The numbering format as depicted in Section 4 may be interpreted as:

SAC NXX XXXX

Where "SAC" (a non-geographic NPA code), "NXX" (Service Provider identification code) and 'XXXX' form the UPT/PCS subscriber's number.

APPENDIX 1

to TR # _____ - UPT/PCS

Numbering, Addressing and Routing

UPT/PCS Numbering Plan Attributes

1.0 INTRODUCTION

This appendix contains a description of ten attributes which the North American industry has developed to assist in the selection of UPT/PCS numbering and addressing plans. It provides an evaluation of the Home-based and Country-based numbering schemes against the agreed attributes. Finally, where a numbering scheme falls short of fully meeting an attribute, a discussion is provided.

2.0 UPT/PCS NUMBERING/ADDRESSING ATTRIBUTES

The following are attributes and criteria inherent in a UPT/PCS number for the purpose of evaluating and analyzing and addressing scenarios.

2.1 Identify a person - not a terminal

This is a fundamental requirement of the UPT/PCS service. It is the identity that allows a person to be located irrespective of location and terminal type. The personal number is the identity that a customer will declare to others so as to be called. The personal number is also the identity that would be listed in a directory against the users name.

2.2 Dialable from any terminal on the public switched network

Given that a customer can be identified by a single identity (personal number), it is equally important that it can be universally dialed from any participating network or network type (PSTN, ISDN or potentially PSPDN) terminal. This implies that the UPT/PCS numbering solution is consistent with current dialing/access procedures.

2.3 Uniform with existing numbering and dialing plans

- Human Factors
- Network Aspects

As the personal number can be dialed from any participating network terminal it is essential, from the perspective of user knowledge/awareness and network capabilities, that the dialing and numbering plans are at least consistent with the existing structures. The numbering should be the same across all participating networks. The dialing plan however may not be absolutely the same either within or between networks. Care will be necessary in selecting the most economic dialing structures that aim to be as close, if not the same, between all networks.

2.4 **Adaptable to the long term needs of UPT/PCS**

For network operators and administrators it is particularly important that sufficient flexibility is built in the deployment of the numbering plan to allow for growth, development, and infrastructure changes. This is an important lesson that numbering plan administrators have learned and is essential to long term planning and evolution.

2.5 **May be implemented within the framework of existing network capabilities**

It is important that UPT/PCS does not unnecessarily introduce new demands and requirements on numbering and dialing plan structures that cannot be implemented within the framework of existing or planned network capabilities. This is an important factor that should allow the universal aspect of UPT/PCS to be available within a reasonable time frame.

2.6 Ability of UPT/PCS number to move with the user (Portability)

Given that UPT/PCS will be supported by many service providers and network operators, it is important to identify the principle that users are not forced to change their number if they wish to change their service providers or supporting base network. This is a difficult requirement to achieve and is often referred to as number portability.

2.7 Network efficiency

- Efficient Routing
- Identify UPT/PCS type call with ease
- Conservation of future resource

The numbering and dialing plan structure should, where possible, allow efficient routing. This would imply a structured rather than unstructured form of number. To support this requirement and ease of network design, it is desirable to identify a UPT/PCS call with the minimum number of digits with the numbering and/or dialing plan structure. Finally conservation of future resources is also very important. Numbering plans, by their nature are a finite resource. These resources are constrained also by structures which reduce the actual available capacity. This is a recognized problem with number plan administrators and therefore must be taken into full account.

2.8 Easy to administer

Once designed the numbering plan structure should lend itself well to day to day management and administration. Overly complicated administration procedures will have a detrimental effect on the introduction of UPT/PCS service.

2.9 Users able to recognize a UPT/PCS number

A user, be it a UPT/PCS subscriber or normal subscriber should ideally be able to universally recognize a UPT/PCS number from a non-UPT/PCS number. This may be achieved by a dialing prefix and/or the numbering plan or a combination of both. Obviously simplicity is essential for presentation.

2.10 UPT/PCS Numbering Format

CCITT Recommendation E.164 (in World Zone 1, the NANP), is the numbering structure for UPT/PCS. CCITT (Draft) Recommendation E.168 is the appropriate application of CCITT Recommendation E.164 for UPT/PCS within World Zone 1. Specifically, the UPT/PCS numbering format, within World Zone 1 will not exceed the maximum number of dialed digits allowed by the NANP.

3.0 ATTRIBUTE EVALUATION MATRIX

The following matrix provides an evaluation of the Home-based and Country-based numbering schemes relative ability to meet the established attributes. The attributes have been divided into three major functional categories - Service, Network and Numbering Resource.

Attribute/Category	Home-based	Country-based
SERVICE		
Identify a Person Not a Terminal	Yes	Yes
Users Able to Recognize	(Note 1)	Yes
Number Portability	(Note 2)	(Note 2)
Dialable from any PSTN Terminal	Yes	Yes
Uniform with Existing Plan	Yes	Yes
NETWORK		
May be Implemented within the Framework of Existing Network Capabilities	Yes	(Note 3)
Interworking with Existing Networks	Yes	Yes
Efficient Routing	Note 4	Yes
Identification of Call Type within Number	Note 5	Yes
NUMBERING OF RESOURCE		
Uniform with Existing Numbering Plan and Structure	Yes	Yes
Uniform with Existing Dialing Plan and Format	Yes	Yes
Efficient Use of Numbering Resources	Yes	Yes
Ease of Administration	(Note 6)	(Note 7)
Conformance with Standards E.164, E.168 and NANP	Yes	Yes
Adaptable to Long Term Needs	Note 8	Note 8

Explanation of Notes

Note 1 The geographic NPA based numbers assigned under the Home-based scheme will contain no specific UPT/PCS component which can be recognized by callers (or the network) outside the home serving area. Within the home domain callers may be able to recognize the number through familiarity acquired through advertising or frequent use.

Note 2 Number portability could be achieved within a designated serving area providing there is cooperation between the Service Providers in that serving area. It is unlikely, in the foreseeable future, that a Home-based numbered customer (i.e. a geographic NPA numbered customer) could have access to number portability (i.e. keep the same number) across different geographic serving areas.

In the case of the Country-based plan, number portability across a large but cohesive serving area once again will require full cooperation between all participating Service Providers. Once number portability is achieved, the UPT/PCS number will be assigned to a user and that user will be able to change Service Providers anywhere within the serving area and keep the same UPT/PCS number.

Note 3 The Country-based scheme involves the establishment of new SAC code(s). While these new SAC's may be implemented within the existing network framework, a process of 'opening' the code(s) in all the appropriate network components must be carried out. Further, the

3.0 DEFINITIONS

General PCS definitions can be found in TR T1P1.3/92-101R3. Definitions which specifically pertain to numbering, addressing and routing aspects of UPT/PCS are included in the appropriate text of this TR.